119: Asthma Mortality in Australia in the 21st Century
Goeman D P, Abramson M J, McCarthy E A, Zubrinich C, Douglass J A
Helen Macpherson Institute of Community Health Research, Royal District Nursing Service, Melbourne, Australia

Aim: Previous Australian asthma mortality studies were undertaken between 1986 and 1997. As asthma mortality has declined and more effective medications are available, circumstances surrounding recent deaths remain unknown. In order to target effective interventions, we undertook a study to investigate reasons for asthma deaths between 2005 and 2011.

Method: We identified the number of deaths in each state and territory and age at the time of death. The National Coroners’ Information System (NCIS) database was searched for the International Classification of Diseases (ICD-10) code for asthma as the underlying cause of death. Available coroners’ findings, autopsy, toxicology and police reports were reviewed to ascertain if the death was attributable to asthma and whether the death was preventable.

Results: Examination of available data in those under 70 years identified risk factors associated with asthma death. These included physical barriers (rural and remote location, living in residential care), being socially disengaged (living alone, not employed, mental illness), smoking, drug and alcohol dependence, and delay in seeking help.

Conclusion: Further reductions in the number of asthma related deaths in Australia in those under 70 years of age will require health professionals working in primary care settings to develop initiatives to improve asthma related health literacy especially among those with mild or episodic asthma. At the community level, reforms are needed to address issues of inequity in health care delivery to ‘reach the un-reached’ as well as awareness of the dangers associated with smoking, drug taking and excessive alcohol use.

Conflict of interest and funding: Helen Macpherson Grant from the Asthma Foundation of Victoria. No conflict of interest

Corresponding author: Dr Dianne Goeman Email: dgoeman@rdns.com.au

115: Change in lung function over time in male metropolitan fire-fighters and general population controls
Discipline of General Practice, School of Population Health and Clinical Practice, University of Adelaide, Adelaide, Australia

Aim: To compare changes in lung function over time between male metropolitan firefighters and general population controls, and to investigate associations between fire-fighters’ use of respiratory protection devices and accelerated lung function decline.

Method: 3-year longitudinal comparison of FEV1 (forced expiratory volume in 1 second) and forced vital capacity (FVC) between 281 fire-fighters and 933 population controls from the North West Adelaide Health Study. Repeated measures and logistic regression models were used to compare course of FEV1 and FVC and risk of accelerated (>0.050 L/year) FEV1 decline between the cohorts. Within the fire-fighter cohort, risk of accelerated FEV1 decline was compared between subgroups based on use of respiratory protection devices.

Results: Population controls showed very similar mean annual declines for FEV1 and FVC across age categories, whereas fire-fighters aged <45 years showed increasing values over time (p=0.005). Fire-fighters had a lower odds of accelerated FEV1 decline compared to controls (OR=0.60, 95%CI 0.44; 0.83), but fire-fighters who never or rarely used respiratory protection during fire knockdown had a higher odds of accelerated FEV1 decline compared to those who used it often or frequently (OR=2.20, 95%CI 1.02; 4.74).

Conclusion: Younger generations of fire-fighters showed an increase in lung function relative to their older colleagues, while population controls consistently showed decline of lung function across all ages. Fire-fighters who reported to never or rarely use their respiratory protection had an increased risk of accelerated FEV1 decline. This study further highlights the importance of consistent use of respiratory protection devices by fire-fighters and monitoring of their (respiratory) health.

Conflict of interest and funding: Conflict of interest: none. Funding: South Australian Metropolitan Fire Service and University of Adelaide

Corresponding author: Assoc Prof Tjard Schermer Email: tjaarda.schermer@adelaide.edu.au
131: Next of kin’s experience of living with a patient suffering from COPD: two years after a nurse-led multidisciplinary programme of pulmonary rehabilitation in primary care
Family Medicine Research Centre, Örebro University, Sweden.

**Aim:** To describe next of kin’s experience of living with a patient suffering from COPD, two years after the latter’s participation in a primary care nurse-led multidisciplinary rehabilitation programme.

**Method:** Descriptive, qualitative design as part of a longitudinal study comprising a nurse-led multidisciplinary programme for patients with COPD where next of kin were invited to one session. Semi-structured interviews were conducted with twenty next of kin and analysed by means of qualitative content analysis.

**Results:** One theme emerged: Life remains overshadowed by illness; and two sub-themes: Life has its positive sides and Living with a sense of vulnerability. Fluctuations between feelings of togetherness, one significant aspect of the positive side, and heavy burden which was related to the experienced vulnerability were caused by the patient’s current condition. Next of kin have a heavy burden of responsibility; life was experienced as still overshadowed by illness, despite the nurse-led multidisciplinary programme.

**Conclusion:** Next of kin have a heavy burden of responsibility; life was experienced as still overshadowed by illness, despite the nurse-led multidisciplinary programme. However, there were positive outcomes even two years after the programme, including better communication with a closer relationship and planning life together, although next of kin need more support.

**Conflict of interest and funding:** This research was funded by the Foundation of Maja Johansson and Maria Brantefors scholarship fund in Örebro University for developmental work in health- and medical service and the Research Committé of Örebro County Council. There is no conflict of interest to declare.

**Corresponding author:** Dr Ann-Britt Zakrisson  
**Email:** ann-britt.zakrisson@orebroll.se

---

241: Improved asthma outcomes with FENO-guided anti-inflammatory treatment: A randomised controlled trial
Karolinska Institutet, Stockholm, Sweden

**Aim:** To examine the effects of anti-inflammatory treatment guided by fractional exhaled nitric oxide (FENO) on asthma-related quality of life, asthma control and exacerbation rate in adult patients with allergic asthma.

**Method:** This was a randomised controlled, multicentre study (17 sites). A total of 181 non-smoking participants (18-64 years) with confirmed perennial allergy and regular inhaled corticosteroid (ICS) treatment were randomly assigned to one of two treatment arms: a control group (n=88), where FENO was blinded for both patient and physician and the anti-inflammatory treatment adjusted according to routine clinical practice, and an active group (n=93), where the anti-inflammatory treatment was adjusted according to FENO. Participants were followed for one year (5 visits). FENO was measured and questionnaires on asthma-related quality of life (mini-AQLQ) and asthma control (6-item ACQ) were completed. All participants received a logbook in which they noted health care contacts and other asthma events between visits.

**Results:** The change in mini-AQLQ overall score over one year was not significantly different between the groups (p=0.20). However, the improvement in the symptom domain of the mini-AQLQ instrument was significantly larger in the FENO-guided group (p=0.041). In line with this, the ACQ score improved significantly more in the FENO-guided group vs. control group (p=0.045). A significantly lower cumulative incidence of moderate exacerbations was found in the FENO-guided group than in the control group (p=0.009), but no difference was found for severe exacerbations (p=0.73). Mean use of ICS over the study period was similar in the two groups (576 vs. 572 mg/daily budesonide equivalents, p=0.95).

**Conclusion:** Using FENO to guide anti-inflammatory treatment improved asthma outcomes in adults with atopic asthma without increasing overall ICS use.

**Conflict of interest and funding:** Kjell Alving is an associate and minority shareholder of Aerocrine AB. Jörgen Syk has received research support from Aerocrine AB. The study was primarily funded by the county council of Stockholm (PickUp). Support was also received from the Centre for Allergy Research at Karolinska Institutet, Aerocrine AB, MSD Sweden, Phadia AB, and Meda AB.

**Corresponding author:** Dr Jörgen Syk  
**Email:** jorgen.syk@ptj.se